Short-Term Data with LifeStent Use in RESILIENT and Non-RESILIENT Criteria Patients

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Objectives: The self-expanding nitinol stent, LifeStent (Bard Peripheral Vascular, Tempe, Ariz), is commonly used in endovascular interventions for superficial femoral and popliteal arterial stenosis. Food and Drug Administration approval of the device was based on the RESILIENT trial, which demonstrated LifeStent utilization having superior angiographic results and patency rates at 12 months compared with angioplasty alone. Patient inclusion criteria in the RESILIENT trial were highly stringent and excluded patients with critical limb ischemia. The purpose of our study was to determine outcomes of patients receiving the LifeStent for peripheral arterial disease including individuals with severe disease progression.

Methods: All patients receiving a LifeStent during femoropopliteal endovascular interventions between June 2006 and May 2012 with duplex-ultrasound/angiographic follow-up or limb amputation were reviewed. Patients with acute limb ischemia or previous revascularization in the limb of interest were excluded. Patient demographics, Rutherford classification and anatomic factors (TransAtlantic Inter-Society Consensus [TASC] II classification, lesion length, and runoff vessel status) were determined. Outcomes evaluated included limb patency and freedom from limb loss. Loss of primary patency defined as vessel occlusion or needed for target vessel revascularization.

Results: A total of 321 procedures in 272 patients employed the LifeStent during the study time period, with 252 procedures having duplex-ultrasound/angiographic follow-up. Eight-six procedures were excluded from analysis due to limbs having acute limb ischemia or a prior stent or bypass graft, leaving for analysis 166 limbs in 151 patients having the LifeStent utilized in de novo vessels (54% male; mean age, 68 ± 12 years). Eighty percent did not meet RESILIENT criteria. Exclusion included a Rutherford category greater than 3 (51%), TASC II classifications C/D (51%), zero runoff vessels to the foot (6%) or stent placement outside the zone defined (18%). Median follow-up period for patency was 8 months (range, 6 days to 37 months). Primary patency rates for all limbs were 81% at 6 months and 50% at 12 months. TASC II classification did not significantly affect rates of primary patency ($P = .30$) or primary-assisted patency ($P = .43$). Predictors for loss of primary patency included vessel occlusion ($P = .01$) and the absence of clopidogrel at discharge ($P = .001$). Fifteen limbs were amputated with freedom from limb loss at 12 months being 92%. A preintervention Rutherford category greater than 3 predicted limb lost ($P = .01$).

Conclusions: The LifeStent is a viable option for patients with peripheral arterial disease regardless of disease severity.

Most Complications of Common Femoral Endarterectomy Occur after Hospital Discharge

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Objectives: Common femoral endarterectomy for limited arterial occlusive disease is performed commonly because it is considered a short and fairly low-risk procedure. This study investigates the timing of 30-day outcomes of this procedure.

Methods: All patients who underwent common femoral endarterectomy in the National Surgical Quality Improvement Program database between 2005 and 2010 were selected. After the procedure's mortality and morbidities were identified, we specifically focused on the timing of event occurrences before and after hospital discharge.

Results: There were a total of 1843 common femoral endarterectomies performed during that period. The average operative time was 146 ± 69.5 minutes, and 10% of patients needed to return to the operating room. The average length of stay was 4 ± 5.8 days; 90% of patients were discharged within 1 week of surgery. Although cardiovascular events, renal dysfunction, and pulmonary complication rates were relatively low (Table), there was a 3.4% mortality rate, almost one-half of which occurred after the first week. Wound infection rate was 3%; 94% of which occurred after the first week. Overall, there was a 10% rate of combined mortality/morbidity, and more than 60% of these events occurred after the first week.

Conclusions: Although common femoral endarterectomy is considered a relatively benign procedure, it still has significant complication rate. However, a significant percentage of these complications occurred after patients are discharged from the hospital. Close postoperative follow-up should be considered.

Table. Thirty-day outcomes and timing of event occurrence after common femoral endarterectomy

		Weeks after surgery			
n = 1843	*Events n (%)*	*1*	*2*	*3*	*≥4*
Mortality	62 (3.4%)	31 (53.5%)	12 (20.7%)	4 (6.9%)	11 (19.0%)
Graft failure	21 (1.1%)	8 (38.1%)	7 (33.3%)	3 (14.3%)	3 (14.3%)
Cardio	27 (1.5%)	19 (70.4%)	4 (14.8%)	1 (3.7%)	3 (11.1%)
Clot	25 (1.4%)	8 (32.0%)	6 (24.0%)	8 (32.0%)	3 (12.0%)
Renal	16 (0.9%)	10 (62.5%)	4 (25.0%)	2 (12.5%)	0 (0%)
Pneumo	61 (3.3%)	38 (63.3%)	11 (18.3%)	8 (13.3%)	3 (5.0%)
Wound	49 (2.7%)	3 (6.1%)	20 (40.8%)	14 (28.6%)	12 (24.5%)
Sepsis	47 (2.6%)	12 (26.7%)	19 (42.2%)	7 (15.6%)	7 (15.6%)
Composite	191 (10.4%)	68 (36.2%)	51 (27.1%)	37 (19.7%)	32 (17.0%)

Rapid Fire Presentations

Branched Surgical Grafts for Aortic Reconstruction in Connective Tissue Disorder Patients: The Emerging Standard for Repair

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Objectives: Connective tissue disorders (CTD) can predispose patients to aneurysmal dilation of the entire aorta. Carrel patch or inclusion patches have been a long standing method for branch reconstruction but leaves aortic tissue at risk for recurrent aneurysm after repair. Furthermore, re-do aortic procedures carry substantially higher procedural risk than index operations and, thus, should be avoided. The purpose of this study is to evaluate the performance of branched surgical grafts for aortic reconstruction in thoracoabdominal aortic aneurysms in CTD patients.

Methods: Patient records from the Johns Hopkins Hospital between August of 2006 and January 2013 were evaluated. Twenty patients were identified with CTD and underwent branched renovisceral reconstruction for either type I, II, or III thoracoabdominal aortic aneurysms. Follow-up data and imaging were retrospectively reviewed for technical and postoperative complications.

Results: A total of 20 patients, with an average age of 45 (17-67) years, were reconstructed with branched Gelweave grafts on left atriofemoral bypass. Overall mortality was 10% with both deaths occurring in the early postoperative period (aortic arch rupture at 96 hours and cerebral hemorrhage at 120 hours). Of the 18 surviving patients (10 women, 8 men), 64 visceral vessels were reconstructed with a mean follow-up of 23.6 months (range, 3-47 months). Two renal artery bypasses thrombosed (clinically silent) in follow-up, yielding a branch patency rate of 97%. Median preoperative creatinine was 0.81 (0.4-1.3) mg/dL and median postoperative creatinine was 1.1 (0.4-3.3) mg/dL ($P = 0.4$). There were no mesenteric complications or need for hemodialysis. No patients required exploration for bleeding or secondary procedures to assist in visceral patency, and none suffered spinal cord injury. On follow-up, there was no additional aneurysmal degeneration in the replaced aortic segment or renovisceral branches.

Conclusions: Branched aortic surgical grafts eliminate the aorta at risk for recurrent aneurysms. Branched reconstruction is durable and should be the method of choice for repair of complex thoracoabdominal aneurysms in patients with CTD. Furthermore, this technique may benchmark comparison with emerging branched endovascular technology in patients with CTD.

Preoperative Smoking Cessation is Essential in Preventing Early Graft Failure after Infrainguinal Bypass Surgery

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Objectives: Smoking has been implicated as the single most important risk factor for the development of peripheral arterial disease (PAD). While previous studies have found poor long-term outcomes in smokers undergoing lower extremity bypass, little data exists as to the effects of persistent tobacco abuse on the early outcomes of infrainguinal bypass on a national level.

Methods: The American College of Surgeons-National Surgical Quality Improvement Program database from 2005-2011 was queried for all patients undergoing infrainguinal bypass. A bivariate analysis was done to assess pre- and intraoperative risk factors for the primary outcome of 30-day graft failure stratified by current smoking status. The American College of Surgeons-National Surgical Quality Improvement Program considers patients to be nonsmokers if they did not smoke for 12 months